	Application No.	Applicant(s)
Notice of Allowability	10/602,743	MOLISCH ET AL.
	Examiner	Art Unit	
	Jaison Joseph	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *amendment filed on07/17/2007*.

2. ☒ The allowed claim(s) is/are *1,2,4-13,15-19,21,and 22 renumbered as 1-19 respectively*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some*   c) ☐ None of the:

        1. ☐ Certified copies of the priority documents have been received.

        2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

        3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

    * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.

   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)

3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____

4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application

6. ☒ Interview Summary (PTO-413), Paper No./Mail Date _____ .

7. ☒ Examiner's Amendment/Comment

8. ☒ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____.

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Clifton Mueller on 08/30/2007.

The application has been amended as follows:

Claim 1 rewrite as: A method for shaping a spectrum of an impulse radio signal, comprising:

generating a set of ultrawide bandwidth basis pulses at a plurality of frequencies and a plurality of random delays;

optimizing, jointly, weights and delays as a solution to a quadratic optimization problem to approximately minimize a deviation of the spectrum from a spectral mask an ultrawide bandwidth spectral mask, in which the spectral mask is designed for indoor channels and limits power as a function of frequency in the spectral mask;

orthogonalizing and normalizing the set of ultrawide bandwidth basis pulses; and

applying a branch and bound procedure to the set of orthogonalized and normalized ultrawide bandwidth basis pulses to optimize the delays[[.]] ;

weighting the set of ultrawide bandwidth basis pulses by the weights;

delaying the set of basis pulses by the random delays; and

combining linearly the weighted and delayed basis pulses to conform the

spectrum to the ultrawide bandwidth spectral mask, and wherein the weights and delays

are fixed over time for the spectral mask, and wherein the ultrawide bandwidth basis

pulses are selected from a set of basis pulses by a combinatorial optimization using

training spectral masks.

REASONS FOR ALLOWANCE

The following is an examiner's statement of reasons for allowance: claims 1, 2, 4

– 13, 15 – 19, 21, and 22 are allowable over prior art of record. The prior art of record

failed to teach a method for shaping a spectrum of an impulse radio signal, comprising:

generating a set of ultrawide bandwidth basis pulses at a plurality of frequencies and a

plurality of random delays; optimizing, jointly, weights and delays as a solution to a

quadratic optimization problem to approximately minimize a deviation of the spectrum

from an ultrawide bandwidth spectral mask, in which the spectral mask is designed for

indoor channels and limits power as a function of frequency in the spectral mask;

orthogonalizing and normalizing the set of ultrawide bandwidth basis pulses; and

applying a branch and bound procedure to the set of orthogonalized and normalized

ultrawide bandwidth basis pulses to optimize the delays weighting the set of ultrawide

bandwidth basis pulses by the weights; delaying the set of basis pulses by the random

delays; and combining linearly the weighted and delayed basis pulses to conform the

spectrum to the ultrawide bandwidth spectral mask, and wherein the weights and delays

are fixed over time for the spectral mask, and wherein the ultrawide bandwidth basis

pulses are selected from a set of basis pulses by a combinatorial optimization using

<u>training spectral masks</u> as claimed in independent claim 1 and similarly claimed in independent claim 21. Thus claims 1, 2, 4 – 13, 15 – 19, 21, and 22 are novel and unobvious over prior art of record..

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jaison Joseph whose telephone number is (571) 272-6041. The examiner can normally be reached on M-F 9:30 - 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jaison Joseph
08/30/2007

CHIEH M. FAN
SUPERVISORY PATENT EXAMINER